

REMARKS

The Office Action dated July 10, 2003 has been received and carefully noted. The above amendments to the claims, and the following remarks, are submitted as a full and complete response thereto. Claims 1, 2, 4 and 5 are amended. No new matter is presented. Applicants thank the Examiner for the interview conducted on October 8, 2003 with Applicants' representative. In view of the above amendments and the following remarks, Applicants request the favorable consideration of claims 1, 2, 4, and 5.

Claims 1, 2, 4 and 5 are rejected under 35 U.S.C. §103(a), as being unpatentable over Busato et al. (U.S. Patent 5,957,115) in view of Cook et al. (U.S. Patent 6,283,097). The Office Action takes the position that the cited references teach or suggest all the features of the claimed invention. Applicants respectfully disagree.

Claim 1 is directed to a leakage determination system for an evaporative fuel processing system that causes a canister to absorb evaporative fuel generated from a fuel tank and supplies the evaporative fuel absorbed in the canister to an intake system of an internal combustion engine. The leakage determination system comprises a pressure detection means, a primary pressure reduction means, a secondary pressure reduction means, and a leakage determination means. The pressure detection means detects pressure within the evaporative fuel processing system. The primary pressure reduction means primarily reduces the pressure within the re-evaporative fuel processing system until the detected pressure becomes equal to a predetermined negative pressure, by introducing negative pressure from the intake system. The secondary pressure reduction means secondarily reduces the pressure within the evaporative fuel processing system by introducing the negative pressure from the intake system successively after the primary pressure reduction by the primary pressure reduction means under predetermined conditions. The leakage determination means determines that if there is a leak in the evaporative fuel processing system when a variation amount of the detected pressure detected during the secondary pressure reduction by the secondary pressure reduction is higher than a predetermined leakage reference value.

Claim 4 recites a leakage determination method for an evaporative fuel processing system that causes a canister to absorb evaporative fuel generated from a fuel tank and supplies the evaporative fuel absorbed in the canister to an intake system of an internal

combustion engine. The leakage determination method comprises a pressure detection step, a primary pressure reduction step, a secondary pressure reduction step, and a leakage determination step. The pressure detection step detects the pressure within the evaporative fuel processing system. The primary pressure reduction step primarily reduces the pressure within the evaporative fuel processing system until the detected pressure becomes equal to a predetermined negative pressure, by introducing negative pressure from the intake system. The secondary pressure reduction step secondarily reduces the pressure within the evaporative fuel processing system by introducing the negative pressure from the intake system successively after the primary pressure reduction at the primary pressure reduction step under predetermined conditions. The leakage determination step is used determine if there is a leak in the evaporative fuel processing system when a variation amount of the detected pressure detected during the secondary pressure reduction is higher than a predetermined leakage reference value.

Busato discloses a pulse interval leak detection system, which introduces negative pressures into the evaporative fuel processing system. The negative pressure is introduced by opening the purge valve 8. The purge valve 8 is closed when the pressure reaches an upper regulating limit. As a result, the negative pressure is introduced intermittently and repeatedly to maintain a proper pressure with the system.

Cook is directed to an automotive evaporative emission leak detection system. Cook discloses a leak detection test that utilizes the evaporative emission space to be quickly pressurized to appropriate test pressure at the beginning of the test but will abort the test if conditions not conducive to obtaining an accurate result are discovered. When a test is allowed to continue, pump 24 pressurizes the evaporative emission system to a predefine target pressure.

However, the combination of Busato and Cook fail to teach or suggest all the features recited in claims 1 and 4. Specifically, the cited references either alone or in combination fail to teach or suggest a primary and secondary pressure reduction means. More specifically, the cited references fail to teach or suggest secondarily reducing the pressure within the evaporative fuel processing system by introducing the negative pressure from the intake system successively after the primary pressure reduction by the primary pressure reduction means under predetermined conditions. Although Cook

discloses a emission space that may be quickly pressurized to an appropriate test pressure, Cook does not teach or suggest a primary and secondary pressure reduction means, wherein the secondary pressure reduction means secondarily reduces the pressure within the evaporative fuel processing system by introducing the negative pressure from the intake system successively after the primary pressure reduction by the primary pressure reduction means under predetermined conditions. Thus, Cook does not cure the deficiencies of Busato.

In the claimed invention, negative pressure from the intake system is introduced successively after the primary pressure reduction by the primary pressure reduction means under predetermined conditions. Busato, however, discloses detecting the pressure within the system when the negative pressure is introduced. As a result, the negative pressure is used for monitoring whether or not the pressure within the system reaches the upper regulating limit. Thus, a leak and a leak size, according to Busato are determined based on the interval between the negative introduction cycles. The leakage determination means of the claimed invention, however, determines that there is a leak in the system when a variation amount of the detected pressure that is detected during the secondary pressure reduction is higher than the predetermined leakage reference value.

Accordingly, it is submitted that the cited references fail to teach or suggest a primary and secondary pressure reduction means, wherein the secondary pressure reduction means secondarily reduces the pressure within the evaporative fuel processing system. The cited references also fail to teach or suggest a leakage determination means or step for determining that there is a leak in the evaporative fuel processing system when a variation amount of the detected pressure detected during the secondary pressure reduction is higher than the predetermined leakage reference value. Therefore, Applicants respectfully submit that claims 1 and 4 recite subject matter that is neither taught nor suggested by the cited references. Accordingly, Applicants request the withdrawal of the rejection of claims 1 and 4 under 35 U.S.C. 103(a).

Claims 2 and 5 are dependent upon claims 1 and 4. It is respectfully submitted that claims 2 and 5 recite subject matter that is neither taught nor suggested by the applied references for at least the reasons mentioned above. Therefore, Applicants request the withdrawal of the rejection of claims 2 and 5.


In view of the distinctions discussed above, withdrawal of the rejections to claims 1, 2, 4 and 5 is respectfully requested. Claims 1, 2, 4, and 5 are amended. No new matter is presented. In view of the above amendments and remarks, Applicants request the favorable consideration of claims 1, 2, 4, and 5.

Should the Examiner believe the application is not in condition for allowance, the Examiner is invited to contact Applicant's undersigned attorney at the telephone number listed below.

In the event this paper is not considered to be timely filed, Applicants respectfully petition for an appropriate extension of time. The Commissioner is authorized to charge payment for any additional fees which may be required with respect to this paper to Counsel's Deposit Account 01-2300.

Respectfully submitted,

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Enclosure: Extension of Time